UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/050,049	01/17/2002	Juergen Klenk	00280732AA	1142

			EXAMINER
30743	7590	04/22/2005	BELL, MELTIN

WHITHAM, CURTIS & CHRISTOFFERSON, P.C.
11491 SUNSET HILLS ROAD
SUITE 340
RESTON, VA 20190

ART UNIT	PAPER NUMBER
2129	

DATE MAILED: 04/22/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

	Application No.	Applicant(s)
Office Action Summary	10/050,049	KLENK ET AL.
	Examiner	Art Unit	
	Meltin Bell	2121	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) FROM
THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed
  after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any
  earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *17 January 2002 and 22 February 2005*.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is
closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-26* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-25* is/are rejected.

7)☒ Claim(s) *26* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *17 January 2002* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All   b)☒ Some * c)☐ None of:

      1.☒ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage

        application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date *2/15/05 and 7/3/03*.

4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ .

5) ☐ Notice of Informal Patent Application (PTO-152)

6) ☐ Other: _____ .

DETAILED ACTION

This action is responsive to application **10/050,049** filed 01/17/2002. Claims 1-26
have been examined.

Oath/Declaration

The oath or declaration is defective. A new oath or declaration in compliance
with 37 CFR 1.67(a) identifying this application by application number and filing date is
required. See MPEP §§ 602.01 and 602.02.

> The oath or declaration is defective because:
> It was not signed/executed in accordance with either 37 CFR 1.66 or 1.68.

Priority

Applicant is advised of possible benefits under 35 U.S.C. 119(a)-(d), wherein an
application for patent filed in the United States may be entitled to the benefit of the filing
date of a prior application filed in a foreign country.

Acknowledgment is made of applicant's claim for foreign priority based on
European applications 01810040.4 filed **1/17/01** and 01103933.6 filed 2/19/01.

Drawings

The drawings have not been checked to the extent necessary to determine the
presence of all possible minor errors. Applicant's cooperation is required in correcting
any errors of which applicant may become aware in the drawings.

The drawings are objected to because:

- Fig. 1, items 10 and 14 would read well labeled 'database' and 'agent texts',

  respectively, as suggested on page 6, line 5 and lines 15-16

- Fig. 9, items 93 and 94 would read well labeled 'computing system' and 'network'

  as suggested on page 17, lines 12 and 13, respectively

A proposed drawing correction or corrected drawings are required in reply to the Office

action to avoid abandonment of the application. The objection to the drawings will not

be held in abeyance.

Specification

The specification has not been checked to the extent necessary to determine the

presence of all possible minor errors. Applicant's cooperation is required in correcting

any errors of which applicant may become aware in the specification.

The disclosure is objected to because of the following informalities:

- '1.—3.' would read well as '1-3' on page 9, line 18.

- '1.—5.' would read well as '1-5' on page 11, line 12.

- '0.5' in column C1 of the table for Text 13 would read well as '0.75' as suggested

  by Figs. 1, 8 and 9, items 19, 82 and 92, respectively

Appropriate correction is required.

Claim Objections

Claims 1, 17 and 25 are objected to because of the following informalities:

Regarding claim 1:

- 'Method' would read well as 'A computer-implemented method'

- the comma (',') in step c) would read well as a semicolon (';')

Regarding claim 17:

- 'A system' would read well as 'A computer-implemented system'

- 'thoses' would read well as 'those'

Regarding claim 25:

- 'Software' would read well as 'A software'

- 'strenth' would read well as 'strength'

Appropriate correction is required.

Claim 26 is also objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. Claim 26 depends on missing claim 30. The examiner suggests 'claim 30' would read well as 'claim 25'.

Claim Rejections - 35 USC § 101

35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 1-24 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. The language of the claims (e.g. "strength", "text", "query") raise a question as to whether the claims are directed merely to an abstract idea that is not tied to a technological art, environment or machine which would result in a practical application producing a concrete, useful, and tangible result to form the basis of statutory subject matter under 35 U.S.C. 101. For example, if claim 1 was amended to recite a computer-implemented method and required performance of a result outside of a computer, it will be statutory in most cases since use of technology permits the function of the descriptive material to be realized.

Claim Rejections - 35 USC § 102/103

To expedite a complete examination of the instant application, the claims rejected under 35 U.S.C. 101 (nonstatutory) above are further rejected as set forth below in anticipation of applicant amending these claims to place them within the four statutory categories of invention.

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and

the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the Office presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the Office to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1-5, 7-10 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over *Binnig et al* European Patent Number (EPN) 0 962 873 A1 "Processing of textual information and automated apprehension of information" (Dec. 8, 1999) in view of *Braden-Harder et al* United States Patent Number (USPN) 5,933,822 "Apparatus and methods for an information retrieval system that employs natural language processing of search results to improve overall precision" (Aug. 3, 1999).

Regarding claim 1:

Binnig et al teaches,

- Method ([0019]) for automatically determining a characterizing strength (C) (Abstract) which indicates how well a text (11) stored in a database (10) ([0051]) describes a query (15) ([0014]), comprising the steps of:

- a) defining a query (15) ([0055]) comprising a query word ([0031])

- b) creating (71) a graph (30) ([0068]) with nodes and links ([0028-0030]), whereby words of the text (11) are represented by the nodes and a relationship between the words is represented by the links

- c) evolving (72) the graph (30) according to certain and overwriting rules ([0020], [0049], [0052-0053])

- d) determining a neighborhood of the query word ([0078]), the neighborhood comprising those nodes connected through one or more links to the query word and

- e) calculating the characterizing strength (C) based on the neighborhood (page 10, lines 25-46)

However, *Binnig et al* doesn't explicitly teach the rules are a pre-defined set of rules while *Braden-Harder et al* teaches,

- the rules are a pre-defined set of rules (Detailed Description text, paragraphs 19-20 and 22)

Motivation - The portions of the claimed method would have been a highly desirable feature in this art for employing natural language processing to improve the accuracy of a keyword-based document search (*Braden-Harder et al*, Brief Summary text, paragraph 21). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made, to modify *Binnig et al* as taught by *Braden-Harder et al* for the purpose of employing natural language processing to improve the accuracy of a keyword-based document search.

Regarding claim 2:

The rejection of claim 2 is the same as that for claim 1 as recited above since the stated limitations of the claim are set forth in the references. Claim 2's limitation is taught in *Binnig et al*:

- the characterizing strength (C) is calculated in step e) by counting the number of immediate neighbors of the query word ([0053]), whereby an immediate neighbor is a word that is connected through one link to the query word

Regarding claim 3:

The rejection of claim 3 is similar to that for claim 1 as recited above since the stated limitations of the claim are set forth in the references. Claim 3's limitations difference is taught in *Braden-Harder et al*:

- the database (10) stores a plurality of texts (17) (Detailed Description text, paragraphs 24, 34 and 50)

Regarding claim 4:

The rejection of claim 4 is similar to that for claim 1 as recited above since the stated limitations of the claim are set forth in the references. Claim 4's limitations difference is taught in *Binnig et al*:

- performing a search to find texts (11, 12, 13) in the database (10) that contain the query word ([0051-0052])

Braden-Harder et al:

- performing a search to find texts (11, 12, 13) in the database (10) that contain the query word (Detailed Description text, paragraphs 3 and 42)

Regarding claim 5:

The rejection of claim 5 is similar to that for claim 4 as recited above since the stated

limitations of the claim are set forth in the references. Claim 5's limitations difference is

taught in *Binnig et al*:

- the steps b) through e) are repeated (Abstract) for each text (11, 12, 13) that contains

the query word

Braden-Harder et al:

- the steps b) through e) are repeated (Detailed Description text, paragraph 31) for each

text (11, 12, 13) that contains the query word

Regarding claim 7:

The rejection of claim 7 is similar to that for claim 1 as recited above since the stated

limitations of the claim are set forth in the references. Claim 7's limitations difference is

taught in *Binnig et al*:

- a parser is employed, to create the graph in step b) ([0040-0041])

Regarding claim 8:

The rejection of claim 8 is similar to that for claim 1 as recited above since the stated

limitations of the claim are set forth in the references. Claim 8's limitations difference is

taught in *Binnig et al*:

- a semantic network generator is employed to create the graph (30) in step b) ([0045])

Regarding claim 9:

The rejection of claim 9 is similar to that for claim 1 as recited above since the stated

limitations of the claim are set forth in the references. Claim 9's limitations difference is

taught in *Binnig et al*:

- one graph is generated for each sentence in the text ([0040-0041]) and wherein the

characterizing strength (C) is calculated for each sentence by performing the steps b)

through e) ([0058], [0061], [0063])

Braden-Harder et al:

- one graph is generated for each sentence in the text and wherein the characterizing

strength (C) is calculated for each sentence by performing the steps b) through e) (Brief

Summary text, paragraphs 22-23)

Regarding claim 10:

The rejection of claim 10 is similar to that for claim 9 as recited above since the stated

limitations of the claim are set forth in the references. Claim 10's limitations difference

is taught in *Braden-Harder et al*:

- the characterizing strength (C) of the text is calculated in dependence on the

characterizing strengths (C) of all sentences of the respective text (Detailed Description

text, paragraphs 6 and 36)

Claim Rejections - 35 USC § 103

To expedite a complete examination of the instant application, the claims

rejected under 35 U.S.C. 101 (nonstatutory) above are further rejected as set forth

below in anticipation of applicant amending these claims to place them within the four

statutory categories of invention.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of

the claims under 35 U.S.C. 103(a), the Office presumes that the subject matter of the

various claims was commonly owned at the time any inventions covered therein were

made absent any evidence to the contrary. Applicant is advised of the obligation under

37 CFR 1.56 to point out the inventor and invention dates of each claim that was not

commonly owned at the time a later invention was made in order for the Office to

consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g)

prior art under 35 U.S.C. 103(a).

Claims 6, 16 and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable

over *Binnig et al* in view of *Braden-Harder et al* and in further view of *Goldman et al*

"Proximity Search in Databases" (1998).

Regarding claim 6:

Binnig et al teaches,

- Method ([0019]) for automatically determining a characterizing strength (C) (Abstract)

which indicates how well a text (11) stored in a database (10) ([0051]) describes a query

(15) ([0014]), comprising the steps of:

- a) defining a query (15) ([0055]) comprising a query word ([0031])

- b) creating (71) a graph (30) ([0068]) with nodes and links ([0028-0030]), whereby

words of the text (11) are represented by the nodes and a relationship between the

words is represented by the links

- c) evolving (72) the graph (30) according to certain and overwriting rules ([0020],

[0049], [0052-0053])

- d) determining a neighborhood of the query word ([0078]), the neighborhood

comprising those nodes connected through one or more links to the query word and

- e) calculating the characterizing strength (C) based on the neighborhood (page 10,

lines 25-46)

- performing a search to find texts (11, 12, 13) in the database (10) that contain the

query word ([0051-0052])

- the steps b) through e) are repeated (Abstract) for each text (11, 12, 13) that contains

the query word

However, *Binnig et al* doesn't explicitly teach the rules are a pre-defined set of rules or

displaying a list (82) showing the characterizing strength (C) of each text (11, 12, 13)

that contains the word while *Braden-Harder et al* teaches,

- the rules are a pre-defined set of rules (Detailed Description text, paragraphs 19-20

and 22)

- performing a search to find texts (11, 12, 13) in the database (10) that contain the

query word (Detailed Description text, paragraphs 3 and 42)

- the steps b) through e) are repeated (Detailed Description text, paragraph 31) for each

text (11, 12, 13) that contains the query word

Goldman et al teaches,

- displaying a list (82) showing the characterizing strength (C) of each text (11, 12, 13)

that contains the word (page 27, right column, Figure 1 and paragraph 2; page 28,

paragraph 1)

Motivation - The portions of the claimed method would have been a highly desirable

feature in this art for employing natural language processing to improve the accuracy of

a keyword-based document search (*Braden-Harder et al*, Brief Summary text,

paragraph 21) and quickly finding relevant information (*Goldman et al*, Abstract).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the

invention was made, to modify *Binnig et al* as taught by *Braden-Harder et al* and

Goldman et al for the purpose of employing natural language processing to improve the

accuracy of a keyword-based document search and quickly finding relevant information.

Regarding claim 16:

The rejection of claim 16 is similar to that for claims 2 and 6 as recited above since the

stated limitations of the claim are set forth in the references. Claim 16's limitations

difference is taught in *Goldman et al*:

- the characterizing strength (C) of the text is an average (page 29, right column,

paragraph 1) calculated by adding the characterizing strengths (C) of all sentences of

the respective text, and then dividing the result of the previous step by the number of

sentences

Regarding claim 25:

Binnig et al teaches,

- Software ([0040]) module ([0024]) for automatically determining a characterizing

strength (C) (Abstract) which indicates how well a text in a database ([0051]) describes

a query ([0014]), whereby said software module, when executed by a programmable

data processing system ([0001]), performs the steps:

- a) enabling a user to define a query (15) ([0055]) comprising a word ([0031])

- b) creating a graph (71) ([0068]) with nodes and links ([0028-0030]), whereby words of

the text (17) are represented by nodes and the relationship between words is

represented by means of the links,

- c) evolving the graph (72) according to certain and overwriting rules ([0020], [0049],

[0052-0053])

- d) determining the neighborhood of the word ([0078]), whereby the neighborhood

comprises those nodes that are connected through one or a few links to the word, and

- e) calculating the characterizing strength (C) based on the topological structure ([0018-

0019]) of the neighborhood (page 10, lines 25-46)

However, *Binnig et al* doesn't explicitly teach the rules are a pre-defined set of rules or f)

displaying the characterizing strength (C) while *Braden-Harder et al* teaches,

- the rules are a pre-defined set of rules (Detailed Description text, paragraphs 19-20

and 22)

Goldman et al teaches,

- f) displaying the characterizing strength (C) (page 27, right column, Figure 1 and

paragraph 2; page 28, paragraph 1)

Motivation - The portions of the claimed module would have been a highly desirable

feature in this art for employing natural language processing to improve the accuracy of

a keyword-based document search (*Braden-Harder et al*, Brief Summary text,

paragraph 21) and quickly finding relevant information (*Goldman et al*, Abstract).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the

invention was made, to modify *Binnig et al* as taught by *Braden-Harder et al* and

Goldman et al for the purpose of employing natural language processing to improve the

accuracy of a keyword-based document search and quickly finding relevant information.

Claims 11-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over

Braden-Harder et al in view of *Manelski et al* "A heuristic approach to natural language

processing" (May 1965).

Regarding claim 11:

Binnig et al teaches,

- Method ([0019]) for automatically determining a characterizing strength (C) (Abstract)

which indicates how well a text (11) stored in a database (10) ([0051]) describes a query

(15) ([0014]), comprising the steps of:

- a) defining a query (15) ([0055]) comprising a query word ([0031])

- b) creating (71) a graph (30) ([0068]) with nodes and links ([0028-0030]), whereby

words of the text (11) are represented by the nodes and a relationship between the

words is represented by the links

- c) evolving (72) the graph (30) according to certain and overwriting rules ([0020],

[0049], [0052-0053])

- d) determining a neighborhood of the query word ([0078]), the neighborhood

comprising those nodes connected through one or more links to the query word and

- e) calculating the characterizing strength (C) based on the neighborhood (page 10,

lines 25-46)

However, *Binnig et al* doesn't explicitly teach the rules are a pre-defined set of rules or

the graph is evolved in step c) by replacing auxiliary verbs with main verbs while

Braden-Harder et al teaches,

- the rules are a pre-defined set of rules (Detailed Description text, paragraphs 19-20

and 22)

Manelski et al teaches,

- the graph is evolved in step c) (page 4, Figure 1) by replacing auxiliary verbs with main

verbs (page 35, last paragraph and page 36, first paragraph)

Motivation - The portions of the claimed method would have been a highly desirable

feature in this art for employing natural language processing to improve the accuracy of

a keyword-based document search (*Braden-Harder et al*, Brief Summary text,

paragraph 21) and establishing meaning equivalence (*Manelski et al*, Abstract).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the

invention was made, to modify *Binnig et al* as taught by *Braden-Harder et al* and

Manelski et al for the purpose of employing natural language processing to improve the

accuracy of a keyword-based document search and establishing meaning equivalence.

Regarding claim 12:

The rejection of claim 12 is the same as that for claims 1 and 11 as recited above since

the stated limitations of the claim are set forth in the references.

Regarding claim 13:

The rejection of claim 13 is the same as that for claims 1 and 11 as recited above since

the stated limitations of the claim are set forth in the references.

Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over *Binnig et*

al in view of *Braden-Harder et al* and in further view of *Bessho et al* USPN 6,243,670

"Method, apparatus, and computer readable medium for performing semantic analysis

and generating a semantic structure having linked frames" (Filed Aug. 31, 1999).

Regarding claim 14:

Binnig et al teaches,

- Method ([0019]) for automatically determining a characterizing strength (C) (Abstract)

which indicates how well a text (11) stored in a database (10) ([0051]) describes a query

(15) ([0014]), comprising the steps of:

- a) defining a query (15) ([0055]) comprising a query word ([0031])

- b) creating (71) a graph (30) ([0068]) with nodes and links ([0028-0030]), whereby

words of the text (11) are represented by the nodes and a relationship between the

words is represented by the links

- c) evolving (72) the graph (30) according to certain and overwriting rules ([0020],

[0049], [0052-0053])

- d) determining a neighborhood of the query word ([0078]), the neighborhood

comprising those nodes connected through one or more links to the query word and

- e) calculating the characterizing strength (C) based on the neighborhood (page 10,

lines 25-46)

However, *Binnig et al* doesn't explicitly teach the rules are a pre-defined set of rules or

the subject of the sentence is identified and placed centrally in the graph to produce a

tree-like graph structure in which the subject is at the root, prior to carrying out step d)

while *Braden-Harder et al* teaches,

- the rules are a pre-defined set of rules (Detailed Description text, paragraphs 19-20

and 22)

Bessho et al teaches,

- the subject of the sentence is identified and placed centrally in the graph to produce a

tree-like graph structure in which the subject is at the root, prior to carrying out step d)

(Detailed Description text, paragraph 2)

Motivation - The portions of the claimed method would have been a highly desirable

feature in this art for employing natural language processing to improve the accuracy of

a keyword-based document search (*Braden-Harder et al*, Brief Summary text,

paragraph 21) and generating a semantic structure of the natural language sentence

text (*Bessho et al,* Abstract). Therefore, it would have been obvious to one of ordinary

skill in the art at the time the invention was made, to modify *Binnig et al* as taught by

Braden-Harder et al and *Bessho et al* for the purpose of employing natural language

processing to improve the accuracy of a keyword-based document search and

generating a semantic structure of the natural language sentence text.

Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over *Binnig et*

al in view of *Braden-Harder et al* and in further view of *Feigenbaum et al* "The

Handbook of Artificial Intelligence" (September 1989).

Regarding claim 15:

Binnig et al teaches,

- Method ([0019]) for automatically determining a characterizing strength (C) (Abstract)

which indicates how well a text (11) stored in a database (10) ([0051]) describes a query

(15) ([0014]), comprising the steps of:

- a) defining a query (15) ([0055]) comprising a query word ([0031])

- b) creating (71) a graph (30) ([0068]) with nodes and links ([0028-0030]), whereby

words of the text (11) are represented by the nodes and a relationship between the

words is represented by the links

- c) evolving (72) the graph (30) according to certain and overwriting rules ([0020],

[0049], [0052-0053])

- d) determining a neighborhood of the query word ([0078]), the neighborhood

comprising those nodes connected through one or more links to the query word and

- e) calculating the characterizing strength (C) based on the neighborhood (page 10,

lines 25-46)

However, *Binnig et al* doesn't explicitly teach the rules are a pre-defined set of rules or

determining the number of second neighbors of the query word, whereby a second

neighbor is a word that is connected through two links to the query word while *Braden-*

Harder et al teaches,

- the rules are a pre-defined set of rules (Detailed Description text, paragraphs 19-20

and 22)

Feigenbaum et al teaches,

- determining the number of second neighbors of the query word, whereby a second

neighbor is a word that is connected through two links to the query word (Volume II,

page 6, paragraph 2, "Thus, the basic LISP ... to a depleted argument")

Motivation - The portions of the claimed method would have been a highly desirable

feature in this art for employing natural language processing to improve the accuracy of

a keyword-based document search (*Braden-Harder et al*, Brief Summary text,

paragraph 21) and associating symbols (*Feigenbaum et al*, Volume II, page 7,

paragraph 4) allowing nodes to inherit values (*Feigenbaum et al*, Volume I, page 183,

paragraph 1). Therefore, it would have been obvious to one of ordinary skill in the art at

the time the invention was made, to modify *Binnig et al* as taught by *Braden-Harder et al*

and *Feigenbaum et al* for the purpose of employing natural language processing to

improve the accuracy of a keyword-based document search and allowing nodes to

inherit values.

Claims 17-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over

Binnig et al in view of *Braden-Harder et al.*

Regarding claim 17:

Binnig et al teaches,

- A system ([0001]) for automatically determining a characterizing strength (C)

(Abstract) which indicates how well a text (17) in a database (10) ([0051]) describes a

query (15) ([0014]), the system comprising:

- a calculation engine (18) ([0063]; Fig. 2A-C) for calculating the characterizing

strengths (C) of each of the k texts (11, 12, 13) that match the search query (15), by

performing the following steps for each such text:

- creating a graph ([0068]) with nodes and links ([0028-0030]), whereby words of the

text are represented by the nodes and the relationship between words is represented by

the links,

- evolving the graph according to certain and overwriting rules ([0020], [0049], [0052-

0053]),

- determining the neighborhood of the word ([0078]), whereby the neighborhood

comprises those nodes that are connected through one or more links to the word, and

- calculating the characterizing strength (C) based on the topological structure ([0018-

0019]) of the neighborhood (page 10, lines 25-46)

However, *Binnig et al* doesn't explicitly teach the rules are a pre-defined set of rules or a

database (10) storing a plurality of m texts (17) while *Braden-Harder et al* teaches,

- the rules are a pre-defined set of rules (Detailed Description text, paragraphs 19-20

and 22)

- the query is a search query (Brief Summary text, paragraph 22)

- a database (10) storing a plurality of m texts (17) (Detailed Description text,

paragraphs 24, 34 and 50)

- a search engine (16) for processing a search query (15) in order to identify thoses k

texts (11, 12, 13) from the plurality of m texts (17) that match the search query (15)

(Detailed Description text, paragraph 15)

Motivation - The portions of the claimed system would have been a highly desirable

feature in this art for employing natural language processing to improve the accuracy of

a keyword-based document search (*Braden-Harder et al*, Brief Summary text,

paragraph 21). Therefore, it would have been obvious to one of ordinary skill in the art

at the time the invention was made, to modify *Binnig et al* as taught by *Braden-Harder*

et al for the purpose of employing natural language processing to improve the accuracy

of a keyword-based document search.

Regarding claim 18:

The rejection of claim 18 is similar to that for claim 17 as recited above since the stated

limitations of the claim are set forth in the references. Claim 18's limitations difference

is taught in *Braden-Harder et al*:

- the database (11) is stored in a server (90) connected via a network (94) to a client

system (91, 92, 93) (Detailed Description text, paragraphs 40-43)

Regarding claim 19:

The rejection of claim 19 is similar to that for claim 17 as recited above since the stated

limitations of the claim are set forth in the references. Claim 19's limitations difference

is taught in *Binnig et al*:

- a parser for creating the graph ([0040-0041])

Regarding claim 20:

The rejection of claim 20 is similar to that for claim 17 as recited above since the stated

limitations of the claim are set forth in the references. Claim 20's limitations difference

is taught in *Binnig et al*:

- a semantic network generator for creating the graph ([0045])

Regarding claim 21:

The rejection of claim 21 is similar to that for claim 17 as recited above since the stated

limitations of the claim are set forth in the references. Claim 21's limitations difference

is taught in *Binnig et al*:

- the calculation engine calculates the characterizing strength (C) by counting the

number of immediate neighbors of the word ([0053]), whereby an immediate neighbor is

a word that is connected through one link to the word

Regarding claim 22:

The rejection of claim 22 is similar to that for claim 17 as recited above since the stated limitations of the claim are set forth in the references. Claim 22's limitations difference is taught in *Braden-Harder et al*:

- An information retrieval system (Title; Detailed Description text, paragraph 3) comprising a system as claimed in claim 17

Regarding claim 23:

The rejection of claim 23 is the same as that for claims 17 and 18 as recited above since the stated limitations of the claim are set forth in the references.

Regarding claim 24:

The rejection of claim 24 is the same as that for claims 17 and 18 as recited above since the stated limitations of the claim are set forth in the references.

Conclusion

The following prior art made of record is considered pertinent to applicant's disclosure:

- *Bessho et al;* USPN 6243670; Method, apparatus, and computer readable medium for performing semantic analysis and generating a semantic structure having linked frames

- *Ausborn*; US 5056021; Method and apparatus for abstracting concepts from natural language

- *Tallman et al*; US 5471382; Medical network management system and process

- *Cheng*; US 5487132; End user query facility

- *Mizuno*; US 5577166; Method and apparatus for classifying patterns by use of neural network

- *Hekmatpour*; US 5644686; Expert system and method employing hierarchical knowledge base, and interactive multimedia/hypermedia applications

- *Lenz*; US 5784539; Quality driven expert system

- *Mahoney et al*; US 5819271; Corporate information communication and delivery system and method including entitlable hypertext links

- *Hendricks et al*; US 5893088; System and method for performing database query using a marker table

- *Liddy et al*; US 6006221; Multilingual document retrieval system and method using semantic vector matching

- *Bergman et al*; US 6564263; Multimedia content description framework

- *Coleman*; US 20030061202; interactive product selector with fuzzy logic engine

- *Altschuler et al*; US 6556983; Methods and apparatus for finding semantic information, such as usage logs, similar to a query using a pattern lattice data space

- *Binnig et al*; EP 962873; Processing of textual information and automated apprehension of information

- *Goldman et al*; Proximity search in databases; PROCEEDINGS OF THE 24TH ANNUAL INTERNATIONAL CONFERENCE ON VERY LARGE DATABASES; 24-27 Aug. 1998; pp 26-37

- *Manelski et al*; A heuristic approach to natural language processing; Proceedings of the 1965 conference on Computational linguistics; May 1965; pp title-45

- *Feigenbaum et al*; The Handbook of Artificial Intelligence; September 1989; Vol. 1, pp

183 and Vol. 2, pp 6-7

- *Arya et al*; An optimal algorithm for approximate nearest neighbor searching fixed

dimensions; Journal of the ACM; November 1998; Vol. 45, Is. 6; pp 891-923

Any inquiry concerning this communication or earlier communications from the

Office should be directed to Meltin Bell whose telephone number is 571-272-3680. This

Examiner can normally be reached on Mon - Fri 7:30 am - 4:00 pm.

If attempts to reach this Examiner by telephone are unsuccessful, his supervisor,

Anthony Knight, can be reached on 571-272-3687. The fax phone number for the

organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or

proceeding should be directed to the receptionist whose telephone number is 571-272-

2100.

Information regarding the status of an application may be obtained from the

Patent Application Information Retrieval (PAIR) system. Status information for

published applications may be obtained from either Private PAIR or Public PAIR.

Status information for unpublished applications is available through Private PAIR only.

For more information about the PAIR system, see http://pair-direct.uspto.gov. Should

you have questions on access to the Private PAIR system, contact the Electronic

Business Center (EBC) at 866-217-9197 (toll-free).

MB

Anthony Knight
Supervisory Patent Examiner
Group 3600

April 18, 2005